Survey
of
Bent's Old Fort National Historic Site
for
Breeding Birds and Anurans,
May 2002

Survey Report Submitted to the National Park Service
by the
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EXECUTIVE SUMMARY

During the summer of 2001, the Colorado Natural Heritage Program conducted field surveys of the vertebrates and the vascular plants at Bent's Old Fort National Historic Site (BEOL) in Otero County, Colorado. Both surveys were conducted in accordance with the guidelines set forth in the *Study Plan for Biological Inventories in the Southern Great Plains Network of the National Park Service* (CNHP 2000). Available funding limited the vertebrate survey to twelve days of fieldwork. The vertebrate survey included intensive and extensive efforts to capture fishes, amphibians, reptiles, and small and medium-sized mammals, as well as comprehensive visual searches for vertebrates throughout the property at BEOL.

During the winter of 2000-2001, the National Park Service contracted the Colorado Natural Heritage Program to conduct an additional field survey at BEOL during spring 2002. The supplementary survey was to focus on breeding birds, especially at wetlands (in an effort to document the presence of waterfowl and shorebirds that were missed during the August 2001 survey), and breeding anurans (frogs and toads). In addition, the 2002 survey would provide opportunities to document the presence of other species of vertebrates at BEOL, and opportunities to obtain additional voucher photographs of vertebrates. Available funding provided for six days of fieldwork during 2002.

The National Park Service had set a goal of formally documenting the presence of at least 90 % of the vertebrate species that were thought to occur at Bent's Old Fort National Historic Site. A master species list was prepared for each group of vertebrates (fishes, amphibians, reptiles, mammals, and birds), and the objective of the field surveys was to locate and document the occurrence of at least 90 percent of the species on each list. During the field surveys we found vertebrate species that were not included on the master lists, so we added those species to the lists, thereby increasing the numbers of species that were needed to reach the 90 percent "target" levels.

Although we were able to document the occurrence of many species of vertebrates at BEOL during the two field surveys (and we obtained many voucher photographs), the 90 % target was not reached for any of the vertebrate groups. This result was not surprising, considering the limited funding available for the fieldwork and the many serious difficulties inherent in sampling vertebrates. Of 108 avian species that may occur at BEOL (based on the master list of 92 species, plus 16 other species that we observed), we documented the presence of 72 species, or **67 %** of the avian species. In addition, we documented the presence of 21 of the 55 mammalian species (**38 %**) that were included on the mammal master species list for BEOL. Only 3 of the 11 species (**27 %**) on the amphibian master list were documented during the

two field surveys, and only 7 of 25 reptilian species (**28 %**) were documented. The fish master species list for BEOL consisted of 24 species that the Colorado Division of Wildlife had collected in the Arkansas River near BEOL, plus the Arkansas Darter (*Etheostoma cragini*, a threatened species in Colorado). Our 2001 survey for fishes documented the presence of 4 of these 25 species (**16 %**) in the freshwater wetlands that we were contracted to sample at BEOL (Day Pond and the Arch Wetland). Fishes were not sampled during the 2002 field survey.

As noted by Gionfriddo et al. (2002), the National Park Service staff could add substantively to the list of vertebrates that are known to occur at BEOL without invoking the use of specialized vertebrate survey techniques. Simply by finding and vouchering animal carcasses, skulls, tracks, scats, and other sign, and by recording opportunistic observations of vertebrates at BEOL, National Park Service staff could gradually document the presence of many additional species of vertebrates, including secretive and elusive species that often escape detection during formal field surveys.

INTRODUCTION

During August 2001, the Colorado Natural Heritage Program conducted a survey of the vertebrates at Bent's Old Fort National Historic Site (BEOL) in Otero County, Colorado. Twelve days of fieldwork documented the presence of many species of vertebrates at BEOL, including mammals, birds, reptiles, amphibians, and fishes. During the winter of 2001-2002, the National Park Service asked the Colorado Natural Heritage Program to perform additional survey work during spring 2002 to document the presence of additional species of breeding birds and anurans (frogs and toads). Accordingly, a wildlife biologist and an unpaid wildlife technician visited BEOL during a six-day period in late May 2002 and conducted surveys for birds and anurans. At the request of National Park Service representatives at BEOL, the fieldwork was concentrated at freshwater wetlands where the probability of observing additional (undocumented) avian species (especially waterfowl and shorebirds) was relatively high. Arch Wetland, Day Pond, and the Arkansas River riparian corridor were searched frequently and carefully during each day of fieldwork. In addition, other areas (terrestrial habitats) at BEOL were searched in an effort to document the presence of upland bird species and other vertebrates that were not documented during the 2001 field survey. Voucher photographs (35-mm color transparencies) were taken whenever opportunities were available.

METHODS

We surveyed birds by locating suitable vantage points and observing wetlands for avian activity. In addition, visual encounter surveys (VES) were conducted on foot and by motor vehicle to search for birds at wetlands and in upland habitats (woodlands and grasslands). Throughout the survey period, efforts were made to observe and document the presence of other vertebrate species (mammals, reptiles, and amphibians [salamanders]) in addition to birds and anurans.

Anurans were sampled through the use of fixed-point, auditory surveys. Recordings of the breeding calls of male frogs and toads were played on a Sony portable CD player at Day Pond and at Arch Wetland each evening after dark in an effort to elicit vocal responses from resident anuran males. We also attempted to locate anurans during the day by conducting careful visual searches along the shorelines at Day Pond and the Arch Wetland.

Locations of newly-documented species were determined by using a Garmin 12 GPS (global positioning system) unit, and they were recorded as UTM (universal transverse mercator) coordinates (UTM projection, zone 13, North American Datum of 1927 [NAD27]). Locations of animals that were photographed (in an effort to obtain voucher photos) also were recorded as UTM coordinates. For each photograph, the species, date, time, and location were recorded in a field notebook and later transcribed to a computerized photograph log.

RESULTS AND DISCUSSION

Field surveys for breeding birds and anurans at BEOL began during the afternoon of May 20 and continued through the morning of May 25, 2002. During this period, we conducted 50.9 hours of bird surveys and 4.0 hours of evening anuran call surveys. Sixty-one species of birds were observed at BEOL during the 2002 field survey (Appendix I). Twenty new avian species were documented (Appendices II and III), plus one new mammalian species. No new anurans were detected at BEOL in 2002.

As the 2002 field survey progressed, the rate of documentation of new avian species declined (Fig. 1). Despite this decline, we are convinced that many additional avian species use BEOL but have not yet been documented because their presence has not been formally detected. On many occasions we saw birds make brief visits to freshwater wetlands at BEOL. For example, our only observation of Forster's Terns and Black Terns occurred when a flock of four terns (2 Forster's and 2 Black) suddenly appeared at

Arch Wetland, where they repeatedly dived for fishes in the open water area for about 15 minutes before flying away together. Similarly, the only observation of a Black-crowned Night-Heron occurred when a lone "first spring" bird landed at the edge of the open water at Arch Wetland and then moved into the cattails (*Typha latifolia*) where it remained for about 15 minutes before taking flight and disappearing. About 3 minutes later, the bird returned to the marsh (Arch Wetland) for several minutes and then flew away again. Other avian species that were observed only once during the 2002 survey included the American Bittern, American Avocet, and Western Tanager. The rarity and short duration of these observations suggest that other avian species probably were present at BEOL but were not detected because they occurred at low densities and/or they made only brief appearances at BEOL to exploit specific resources available there. Detection of all avian species that occur at BEOL would require a great deal of field time because birds are highly mobile and because, at least in some cases, their visits to specific sites at BEOL (e.g., for foraging opportunities) can be brief.

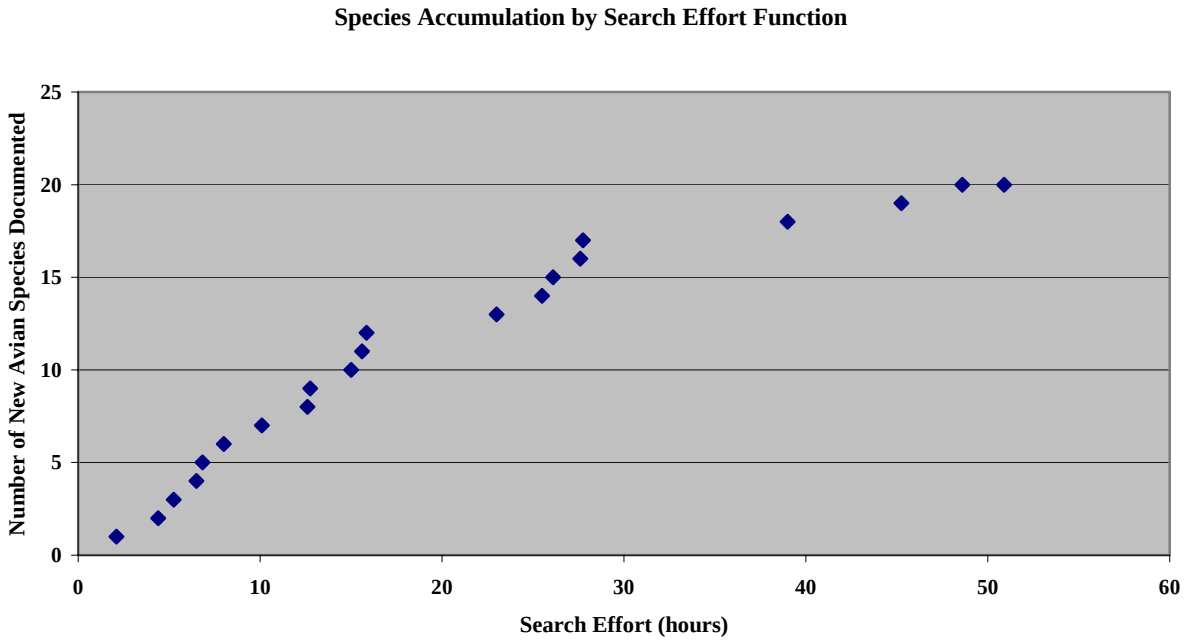

Figure 1. Relationship between search effort and the number of new avian species documented at Bent's Old Fort National Historic Site, May 2002.

Four hours of anuran call surveys were conducted at Day Pond and the Arch Wetland. After dark during the evenings of May 20 through 23 (inclusive), we played recordings of male anuran breeding calls for 30 minutes at each of the the two wetland sites. Recordings were played of the calls of the bullfrog (*Rana*

catesbeiana), plains leopard frog (*Rana blairi*), northern leopard frog (*Rana pipiens*), western chorus frog (*Pseudacris triseriata*), Woodhouse's toad (*Bufo woodhousii*), Great Plains toad (*Bufo cognatus*), and plains spadefoot (*Spea bombifrons*). After playing the recorded call of each species, we waited and listened carefully for vocal responses from live resident anurans. During the four evening surveys we heard the calls of male bullfrogs, plains leopard frogs, and Woodhouse's toads at Day Pond and at the Arch Wetland (Appendix IV).

In addition to the evening anuran call surveys, diurnal visual searches for anurans were conducted at Day Pond and at the Arch Wetland. At Day Pond on May 23, we observed one bullfrog at the water's edge along the northern shoreline, and two plains leopard frogs along the southern shoreline. Also on May 23, we heard a very large number of plains leopard frogs vocalizing as we walked among the cattails along the edge of the marsh near the open water area at the northwestern corner of the Arch Wetland.

Master Species Lists: Percentages of Species Documented

Birds – The BEOL breeding bird master species list included 92 species, but we documented the presence of 6 species during 2001 and 10 species during 2002 that were not included on the master list. By adding these 16 avian species to the original 92, we calculated a total of 108 species of birds that may occur at BEOL. We documented the presence of 52 avian species at BEOL during the August 2001 field survey (Gionfriddo et al. 2002), and an additional 20 species were documented in May 2002 (Appendices II, III). Therefore 72 of 108 (**67%**) expected avian species were formally documented during the two surveys at BEOL that were conducted by the Colorado Natural Heritage Program.

Mammals – The BEOL mammal master species list included 55 species, 20 of which were detected through intensive and extensive trapping and sighting efforts during the 2001 field survey, and one of which (rock squirrel, *Spermophilus variegatus*) was detected during the 2002 survey. Although only **38%** (21 of 55) of the species on the mammalian master species list have been documented to date, the documentation of 90% of the species on the list may not be a reasonable objective because of the inclusion on the list of several species that are highly unlikely to occur at BEOL (see discussion in Gionfriddo et al. 2002:11-12).

Amphibians – Eleven species of amphibians were included on the amphibian master species list for BEOL, but only 3 amphibian species (bullfrog, plains leopard frog, and Woodhouse's toad) were documented during 2001 (Gionfriddo et al. 2002), and the same 3 species were documented again during

the 2002 field survey (Appendix IV). No evidence was found that would suggest that any of the other four species of anurans on the amphibian master species list, or the tiger salamander (*Ambystoma tigrinum*, also on the master species list) were present at BEOL during our surveys. The 3 species that we documented represent **27%** of the 11 amphibian species on the master list for BEOL. Although the density of bullfrogs seems to be low, the presence of this exotic species (native to eastern and central North America) at BEOL may have serious ecological consequences. Bullfrogs have the potential to severely disrupt amphibian community ecology and may cause the extirpation of local, native anuran populations (Hammerson 1999).

Reptiles – The reptile master species list for BEOL consisted of 24 species, including 3 species of turtles, 7 species of lizards, and 14 species of snakes. During the 2001 field survey, we documented the presence of 1 species of turtle, 3 species of lizards, and 3 species of snakes, including one (plains garter snake, *Thamnophis radix*) that was not included on the reptile master species list. No new reptilian species were documented at BEOL during the 2002 survey. Seven of 25 (**28%**) expected reptilian species have been documented at BEOL.

Fishes – The BEOL fish master species list included 24 species of fishes that had already been documented locally by the Colorado Division of Wildlife during electro-shocking surveys in the Arkansas River near BEOL. The master list also included the Arkansas darter (*Etheostoma cragini*), an endangered species. We documented the presence of 4 freshwater piscine species at Day Pond and at the Arch Wetland during 2001 but we did not conduct fish surveys during 2002. As noted by Gionfriddo et al. (2002), many of the species found in the Arkansas River (and included on the master list) are not likely to occur in Day Pond or in the Arch Wetland because these species are adapted to riverine conditions that are very different from the environmental conditions that prevail in these two freshwater wetlands (a pond and a large cattail marsh with little open water). The 4 species that we documented represent **16%** of the 25 amphibian species on the master list for BEOL.

Reproductive Activity of Birds at BEOL

Most of the avian species that we observed at BEOL during May 2002 were probably nesting and reproducing (or attempting to do so) on or very near the BEOL property. Several widely-ranging species may have nested at greater distances from BEOL while exploiting specific resources (e.g., food) at BEOL. Evidence of avian breeding at BEOL included observations of birds copulating (American Kestrel, Lark Sparrow, Grasshopper Sparrow), birds visiting active nests (Northern Flicker, Barn

Swallow, European Starling, Western Meadowlark, Bullock's Oriole, House Sparrow), birds collecting and carrying nesting materials (Rock Wren) or food (Red-tailed Hawk, Western Meadowlark), male birds singing on territories (Common Yellowthroat, Red-winged Blackbird, Yellow-headed Blackbird), and birds traveling, loafing, perching, or foraging in pairs (Mallard, Blue-winged Teal, Cinnamon Teal, Ring-necked Pheasant, American Coot, Rock Wren, American Robin, Northern Mockingbird, Brown Thrasher, Brown-headed Cowbird, Orchard Oriole).

Evidence of reproduction by other vertebrates at BEOL included observations of common carp (*Cyprinus carpio*) spawning in the shallows of the Arkansas River and observations of two common muskrats (*Ondatra zibethicus*) repeatedly carrying nest-building materials as they swam and dived at the Arch Wetland. In addition, two adult rock squirrels were observed foraging together on the ground at the northwestern corner of the Casebolt Wetland.

Voucher Photographs of Vertebrates

Throughout the 2002 field survey period we attempted to take voucher photographs of vertebrate species at BEOL when opportunities arose. Photographs that we consider suitable for use as vouchers were taken for 23 avian species during 2002 (Appendix I). Voucher photographs had been lacking for 20 of these species. The other three species (Red-headed Woodpecker, Blue Jay, and Western Wood-Pewee) had been photographed (vouchered) in 2001 but we were able to obtain better photographs of them during 2002 (Appendix I). In addition to the avian voucher photographs, we took voucher photos of the common carp and the common muskrat (not vouchered during the 2001 survey), plus a better voucher photo of a white-tailed deer (*Odocoileus virginianus*) than the one taken during 2001. Voucher photographs for the Lewis's Woodpecker include a photo of a woodpecker as well as photos of a plains cottonwood (*Populus deltoides monilifera*) tree that has been used as a granary or mast storage site by Lewis's Woodpeckers. Although we were unable to get a suitable photograph of a Bullock's Oriole, two photographs that we took of an active Bullock's Oriole nest in a plains cottonwood tree are included as vouchers for that avian species (Appendices I and V).

Vertebrates Observed Near BEOL

In addition to the vertebrate species that we documented at BEOL during the 2002 survey, we observed several other noteworthy species within several miles of the BEOL property. A Burrowing Owl was seen (on May 23, 2002) on a mound in a black-tailed prairie dog (*Cynomys ludovicianus*) town located about 4

miles to the west of BEOL, on the shortgrass prairie to the south of U.S. Route 50. During a preliminary visit to BEOL by biologists from the Colorado Natural Heritage Program, a Burrowing Owl was observed in the same area (by JPG on June 25, 2001). Burrowing Owls were not observed on the small prairie dog town at the southeastern corner of BEOL during our two field surveys, but the species obviously occupies prairie dog colonies near BEOL and may soon colonize the BEOL site. A road-killed striped skunk (*Mephitis mephitis*) was seen on U.S. Route 50 at the western edge of the town of La Junta, Colorado on May 25, 2002, and a few minutes later a Ferruginous Hawk was observed in flight over the highway at the same location. (During the 2001 field survey, a Ferruginous Hawk was seen hunting over the open grassland to the south of the Arkansas River at BEOL [near the prairie dog town].) Although we did not capture any striped skunks during our 2001 trapping session, it is likely that these mustelids (and others such as the long-tailed weasel, *Mustela frenata*) occur along the Arkansas River at BEOL (Gionfriddo et al. 2002:11-12). Finally, a lesser earless lizard (*Holbrookia maculata*), a common inhabitant of flat, sandy, open habitats, was observed outside a fast-food restaurant along Route 50 in La Junta during August 2001 but the species was not detected during field surveys at BEOL.

LITERATURE CITED

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Appendix I. Bent's Old Fort National Historic Site Breeding Bird Species List: All Species Observed, May 2002.

Common Name	Scientific Name
American Bittern	*Botaurus lentiginosus*
Great Blue Heron	*Ardea herodias*
Green Heron	*Butorides virescens*
Black-crowned Night-Heron	*Nycticorax nycticorax*
White-faced Ibis	*Plegadis chihi*
Turkey Vulture[a]	*Cathartes aura*
Mallard	*Anas platyrhynchos*
Blue-winged Teal[b]	*Anas discors*
Cinnamon Teal[b]	*Anas cyanoptera*
Northern Shoveler[b]	*Anas clypeata*
Red-tailed Hawk	*Buteo jamaicensis*
Ferruginous Hawk	*Buteo regalis*
American Kestrel[a]	*Falco sparverius*
Ring-necked Pheasant	*Phasianus colchicus*
Wild Turkey[a]	*Meleagris gallopavo*
Northern Bobwhite[a]	*Colinus virginianus*
Sora	*Porzana carolina*
American Coot[b]	*Fulica americana*
Killdeer[a]	*Charadrius vociferus*
American Avocet[b]	*Recurvirostra americana*
Spotted Sandpiper	*Actitis macularia*
Forster's Tern[b]	*Sterna forsteri*
Black Tern[b]	*Chlidonias niger*
Rock Dove[b]	*Columba livia*
Mourning Dove[a]	*Zenaida macroura*
Great Horned Owl	*Bubo virginianus*

Appendix I, continued

Common Name	**Scientific Name**
Common Nighthawk[a]	*Chordeiles minor*
Belted Kingfisher	*Ceryle alcyon*
Lewis's Woodpecker[b]	*Melanerpes lewis*
Red-headed Woodpecker[a, b]	*Melanerpes erythrocephalus*
Downy Woodpecker	*Picoides pubescens*
Red-shafted (Northern) Flicker	*Colaptes auratus*
Western Wood-Pewee[a, b]	*Contopus sordidulus*
Ash-throated Flycatcher[a]	*Myiarchus cinerascens*
Cassin's Kingbird[a]	*Tyrannus vociferans*
Western Kingbird[a]	*Tyrannus verticalis*
Eastern Kingbird[a]	*Tyrannus tyrannus*
Blue Jay[a, b]	*Cyanocitta cristata*
Black-billed Magpie	*Pica pica*
American Crow	*Corvus brachyrhynchos*
Violet-green Swallow	*Tachycinete thalassina*
Barn Swallow[a]	*Hirundo rustica*
Rock Wren	*Salpinctes obsoletus*
American Robin[b]	*Turdus migratorius*
Northern Mockingbird[b]	*Mimus polyglottos*
Brown Thrasher[b]	*Toxostoma rufum*
European Starling[b]	*Sturnus vulgaris*
Common Yellowthroat[b]	*Geothlypis trichas*
Western Tanager	*Piranga ludoviciana*
Lark Sparrow[a]	*Chondestes grammacus*
Grasshopper Sparrow[a]	*Ammodramus savannarum*
Black-headed Grosbeak[b]	*Pheucticus melanocephalus*
Blue Grosbeak[a]	*Guiraca caerulea*

Common Name	Scientific Name
Red-winged Blackbird[b]	*Agelaius phoeniceus*
Western Meadowlark[b]	*Sturnella neglecta*
Yellow-headed Blackbird[b]	*Xanthocephalus xanthocephalus*
Common Grackle[a]	*Quiscalus quiscula*
Brown-headed Cowbird[b]	*Molothrus ater*
Orchard Oriole	*Icterus spurius*
Bullock's Oriole[b]	*Icterus bullockii*
House Sparrow [a]	*Passer domesticus*

[a] Voucher photograph (35-mm color transparency) taken in 2001. Voucher photographs also were taken in 2001 for five avian species that are not included on this list because they were observed during the 2001 field survey but not during the 2002 survey. See Appendix IX in Gionfriddo et al. (2002) for identities of all vertebrates for which voucher photographs were taken during 2001.

[b] Voucher photograph (35-mm color transparency) taken in 2002.

Appendix II. Bent's Old Fort National Historic Site Documented Breeding Bird Species List, May 2002.

Common Name	Scientific Name	Date Documented	UTM (easting)	UTM (northing)
American Bittern	*Botaurus lentiginosus*	22 May 2002	0637747	4211815
Black-crowned Night-Heron	*Nycticorax nycticorax*	24 May 2002	0637730	4211817
White-faced Ibis	*Plegadis chihi*	22 May 2002	0637729	4211832
Blue-winged Teal	*Anas discors*	21 May 2002	0638187	4211610
Cinnamon Teal	*Anas cyanoptera*	20 May 2002	0638165	4211635
Northern Shoveler	*Anas clypeata*	23 May 2002	0637738	4211794
Sora	*Porzana carolina*	23 May 2002	0637700	4211832
American Coot	*Fulica americana*	22 May 2002	0637766	4211795
American Avocet	*Recurvirostra americana*	21 May 2002	0638148	4211640
Forster’s Tern	*Sterna forsteri*	23 May 2002	0637729	4211832
Black Tern	*Chlidonias niger*	23 May 2002	0637729	4211832
Belted Kingfisher	*Ceryle alcyon*	21 May 2002	0637660	4210376
Lewis’s Woodpecker	*Melanerpes lewis*	21 May 2002	0638452	4212043
Violet-green Swallow	*Tachycineta thalassina*	25 May 2002	0637643	4211844
Rock Wren	*Salpinctes obsoletus*	21 May 2002	0637801	4210672
Northern Mockingbird	*Mimus polyglottos*	21 May 2002	0638922	4210869
Common Yellowthroat	*Geothlypis trichas*	22 May 2002	0637780	4211843
Western Tanager	*Piranga ludoviciana*	24 May 2002	0638249	4210836
Black-headed Grosbeak	*Pheucticus melanocephalus*	21 May 2002	0637643	4210790
Orchard Oriole	*Icterus spurius*	21 May 2002	0638922	4210869

Appendix III. Bent's Old Fort National Historic Site Annotated Breeding Bird Species List, May 2002.

Common Name	Scientific Name	Date(s) Observed	Comments
American Bittern	*Botaurus lentiginosus*	May 22	1 observation of 1 bird at Arch Wetland
Black-crowned Night-Heron	*Nycticorax nycticorax*	May 24	1 observation of 1 bird at Arch Wetland
White-faced Ibis	*Plegadis chihi*	May 22	flock of 6 on 5/22 at 0620 hours; flock of 3 on 5/22 at 1005 hours; both at Arch Wetland
Blue-winged Teal	*Anas discors*	May 21, 22, 23, 24, 25	male and female seen repeatedly at Arch Wetland and along Arkansas River; also a group of 4 was observed at Arch Wetland
Cinnamon Teal	*Anas cyanoptera*	May 20, 21, 22, 23, 24, 25	7 observations of lone males along Arkansas River; 4 observations of male and female along Arkansas River; 2 observations of male and female at Arch Wetland; 1 observation of lone male at Arch Wetland
Northern Shoveler	*Anas clypeata*	May 23, 24, 25	3 observations of 2 males; 3 observations of lone male; all at Arch Wetland
Sora	*Porzana carolina*	May 23, 24, 25	2 observations of lone birds; 1 observation of 2 birds; all at Arch Wetland
American Coot	*Fulica americana*	May 22, 23, 24	2 pairs of birds observed repeatedly at Arch Wetland; presence of 2 nests suspected
American Avocet	*Recurvirostra americana*	May 21	1 observation of 2 birds along Arkansas River
Forster's Tern	*Sterna forsteri*	May 23	1 observation of 2 birds at Arch Wetland, foraging with 2 Black Terns
Black Tern	*Chlidonias niger*	May 23	1 observation of 2 birds at Arch Wetland, foraging with 2 Forster's Terns
Belted Kingfisher	*Ceryle alcyon*	May 21	1 observation of lone bird along Arkansas River; 1 observation of lone bird at Arch Wetland
Lewis's Woodpecker	*Melanerpes lewis*	May 21, 22, 23	5 observations of lone bird; 1 observation of 2 birds; in cottonwood trees to north of Arch Wetland and on both sides of Arkansas River
Violet-green Swallow	*Tachycineta thalassina*	May 25	1 observation of a small group flying with Barn Swallows at Arch Wetland
Rock Wren	*Salpinctes obsoletus*	May 21, 22, 23, 24	4 observations of lone bird; 2 observations of 2 birds; at Arch Wetland and on both sides of Arkansas River
Northern Mockingbird	*Mimus polyglottos*	May 21, 22, 24	5 observations of lone bird; 1 observation of 2 birds; seen on both sides of Arkansas River
Common Yellowthroat	*Geothlypis trichas*	May 22, 23, 24, 25	3 countersinging males were observed repeatedly at Arch Wetland; 1 bird was observed at east edge of marsh, where Arch Wetland flows into Arkansas River
Western Tanager	*Piranga ludoviciana*	May 24	1 observation of 1 adult male to south of Arkansas River
Black-headed Grosbeak	*Pheucticus melanocephalus*	May 21, 22, 24	3 observations of lone birds; 1 observation of 3 birds (2 adults and 1 immature); both sides of Arkansas River
Orchard Oriole	*Icterus spurius*	May 21, 22, 24	3 observations of lone males; 1 observation of a pair; on both sides of Arkansas River

Appendix IV. Summary of Anuran Call Surveys at Bent's Old Fort National Historic Site, May 2002[a].

Date	Time of Day	Location	Anuran Species Detected
May 20	2000-2030	Day Pond	no vocal responses from anurans
May 20	2040-2110	Arch Wetland	*Rana blairi* (many); *Bufo woodhousii* (many)
May 21	2000-2030	Day Pond	no vocal responses from anurans
May 21	2040-2110	Arch Wetland	high winds (steady at 50 mph) precluded our hearing vocal responses of live anurans
May 22	1910-1930	Arch Wetland	*Rana blairi* (several); not yet dark
May 22	2010-2040	Day Pond	*Rana catesbeiana* (1); *Rana blairi* (3-4); *Bufo woodhousii* (several; their calls came from the Arkansas River to the south of Day Pond)
May 22	2050-2120	Arch Wetland	*Rana blairi* (many); *Bufo woodhousii* (1)
May 23	2030-2100	Day Pond	*Rana catesbeiana* (1)
May 23	2105-2135	Arch Wetland	*Rana catesbeiana* (1); *Rana blairi* (many)

[a]Anuran call surveys were not conducted during the evening of May 24 due to low temperatures (44º F. at 2120 hours) and high winds.